What is claimed is:

1. A method of processing a video signal, said video signal consisting of a stream of pixel bytes representing the pixels of successive video frames, each of said video frames corresponding to a two-dimensional array of pixel bytes, said method comprising:

converting said stream of pixel bytes into a stream of difference bytes by performing a subtraction between each pixel byte and a preceding pixel byte in said stream;

discarding any carry bit produced by said subtraction;

grouping together in a single group the difference bytes corresponding to a current one of said video frames;

ranking the difference bytes occurring in said group in accordance with the population of the difference bytes of the same value in said group, and generating a code table for the current video frame correlating each of said difference bytes with one of a set of minimum length characters, wherein higher ranking difference bytes are assigned to shorter length characters;

replacing each difference byte with the corresponding character in accordance with said code table, so as to produce a stream of minimum length characters, said stream comprising a compressed version of said video signal.

2. The method of Claim 1 further comprising writing said stream of minimum length characters and the corresponding code table for the current video frame to a disk memory.

3. The method of Claim 2 further comprising retrieving said stream of minimum length characters and said code table for the current video frame from said disk memory.

4. The method of Claim 3 further comprising:

converting each of said minimum length characters to a corresponding difference byte in accordance with said code table for the current video frame;

computing from each of said difference bytes the corresponding pixel byte by adding each current difference byte and the pixel byte computed from the preceding difference byte, whereby to produce a stream of pixel bytes representing the current video frame.

5. The method of Claim 2 wherein the step of writing said stream of minimum length characters and the corresponding code table for the current video frame to a disk memory is carried out in real time at a data rate at least equal to a data rate of said video signal.

6. The method of Claim 1 wherein said code table corresponds to a Huffman code table.

7. A video signal processor for processing a video signal, said video signal consisting of a stream of pixel bytes representing the pixels of successive video frames, each of said video frames corresponding to a two-dimensional array of pixel bytes, said video processor comprising:

a subtractor for converting said stream of pixel bytes into a stream of difference bytes by performing a subtraction between each pixel byte and a preceding pixel byte in said stream;

the number of bits of said subtractor being equal to the number of bits of said pixel bytes, whereby to discard any carry bit produced by said subtraction;

means for grouping together in a single group the difference bytes corresponding to a current one of said video frames; and

a minimum length encoder comprising:

means for ranking the difference bytes occurring in said group in accordance with the population of the difference bytes of the same value in said group, and generating a code table for the current video frame correlating each of said difference bytes with one of a set of minimum length characters, wherein higher ranking difference bytes are assigned to shorter length characters;

means for replacing each difference byte with the corresponding character in accordance with said code table, so as to produce a stream of minimum length characters, said stream comprising a compressed version of said video signal.

8. The apparatus of Claim 7 further comprising:

a minimum length decoder for converting each of said minimum length characters to a corresponding difference byte in accordance with said code table for the current video frame;

an adder for computing from each of said difference bytes the corresponding pixel byte by adding each current difference byte and the pixel byte computed from the preceding difference byte, whereby to produce a stream of pixel bytes representing the current video frame.

9. The apparatus of Claim 7 wherein said apparatus is characterized by a compression ratio of at least two.

10. The apparatus of Claim 7 wherein said code table corresponds to a Huffman code table.

11. A method of recording in real time onto a storage device video data from a camera or recorder by compensating for a difference in data rate of said video data and a write speed of said storage device, said video data consisting of a stream of pixel bytes representing the pixels of successive video frames, each of said video frames corresponding to a two-dimensional array of pixel bytes, said method comprising:

converting said stream of pixel bytes into a stream of difference bytes by performing a subtraction between each pixel byte and a preceding pixel byte in said stream;

discarding any carry bit produced by said subtraction;

grouping together in a single group the difference bytes corresponding to a current one of said video frames;

ranking the difference bytes occurring in said group in accordance with the population of the difference bytes of the same value in said group, and generating a code table for the current video frame correlating each of said difference bytes with one of a set of minimum length characters, wherein higher ranking difference bytes are assigned to shorter length characters;

replacing each difference byte with the corresponding character in accordance with said code table, so as to produce a stream of minimum length characters, said stream comprising a compressed version of said video data.

12. The method of Claim 11 further comprising writing said stream of minimum length characters and the corresponding code table for the current video frame to a disk memory.

13. The method of Claim 12 further comprising retrieving said stream of minimum length characters and said code table for the current video frame from said disk memory.

14. The method of Claim 13 further comprising:

converting each of said minimum length characters to a corresponding difference byte in accordance with said code table for the current video frame;

computing from each of said difference bytes the corresponding pixel byte by adding each current difference byte and the pixel byte computed from the preceding difference byte, whereby to produce a stream of pixel bytes representing the current video frame.

15. The method of Claim 12 wherein the step of writing said stream of minimum length characters and the corresponding code table for the current video frame to a disk memory is carried out in real time at a data rate at least equal to a data rate of said video signal.

16. The method of Claim 11 wherein said code table corresponds to a Huffman code table.

17. A real time video recording system comprising:

an input port for receiving incoming high speed video camera data in real time at a high data rate nR;

an output port for providing compressed video data to a digital storage medium at a low data rate R at which the digital storage medium is capable of writing;

a video signal processor for compressing a video signal comprising the incoming high speed video camera data received at said input port to produce compressed video data at said output port with a compression ratio of at least n, said video signal consisting of a stream of pixel bytes representing the pixels of successive video frames, each of said video frames corresponding to a two-dimensional array of pixel bytes, said video processor comprising:

a subtractor for converting said stream of pixel bytes into a stream of difference bytes by performing a subtraction between each pixel byte and a preceding pixel byte in said stream;

the number of bits of said subtractor being equal to the number of bits of said pixel bytes, whereby to discard any carry bit produced by said subtraction;

means for grouping together in a single group the difference bytes corresponding to a current one of said video frames; and

a minimum length encoder comprising:

means for ranking the difference bytes occurring in said group in accordance with the population of the difference bytes of the same value in said group, and generating a code table for the current video frame correlating each of said difference bytes with one of a set of minimum length characters, wherein higher ranking difference bytes are assigned to shorter length characters;

means for replacing each difference byte with the corresponding character in accordance with said code table, so as to produce a stream of minimum length

characters, said stream comprising a compressed version of said video signal.

18. The apparatus of Claim 17 further comprising:

a minimum length decoder for converting each of said minimum length characters to a corresponding difference byte in accordance with said code table for the current video frame;

an adder for computing from each of said difference bytes the corresponding pixel byte by adding each current difference byte and the pixel byte computed from the preceding difference byte, whereby to produce a stream of pixel bytes representing the current video frame.

19. The apparatus of Claim 17 wherein said apparatus is characterized by a compression ratio of at least two.

20. The apparatus of Claim 17 wherein said code table corresponds to a Huffman code table.

21. The method of Claim 1 wherein the step of grouping is preceded by:

dividing each difference byte into a higher order bit portion and a lower order bit portion, and wherein the step of grouping said difference bytes comprises grouping only the higher order bit portions of said difference bytes.

22. The apparatus of Claim 7 further comprising:

means for dividing each difference byte into a higher order bit portion and a lower order bit portion, and wherein the means for grouping said difference bytes comprises means for grouping only the higher order bit portions of said difference bytes.

23. The method of Claim 11 wherein the step of grouping is preceded by:

dividing each difference byte into a higher order bit portion and a lower order bit portion, and wherein the step of grouping said difference bytes comprises grouping only the higher order bit portions of said difference bytes.

24. The apparatus of Claim 17 further comprising:

means for dividing each difference byte into a higher order bit portion and a lower order bit portion, and wherein the means for grouping said difference bytes comprises means for grouping only the higher order bit portions of said difference bytes.